Dose conversions

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CLINICAL COMMUNICATION TO THE EDITOR

Dose Conversions: Opportunity for Error

To the Editor:

Most medication errors occur at the ordering stage and are largely preventable.[1] We report a "near miss" in our hospital that would have almost certainly resulted in harm to our patient if it remained undetected. Our 86-year-old patient was admitted to the hospital for repair of a fractured hip. Her medical history included established osteoporosis, hypertension, and transient ischemic attack. She was unable to swallow and her treating surgeon switched all of her oral medications to an alternative route. Unfortunately, the surgeon also changed metoprolol 50 mg orally twice a day to 50 mg *intravenously* (IV) twice a day. The pharmacy department was contacted to deliver the IV metoprolol because the orthopedic ward did not normally stock this. The pharmacist noticed the error after a pharmacy technician realized that there was not a 50 mg metoprolol ampule available and sought advice from the pharmacist on how to deal with the request. The prescriber was then contacted and alerted to the error. The surgeon was not aware that there was a need to convert the oral dose to a different IV dose (metoprolol 5 mg IV twice daily would have been an appropriate dose).

Steps are needed to be taken to ensure any potential errors are minimized as much as possible. For example, electronic prescribing systems may assist in preventing similar errors by alerting the prescriber before the order can be processed. In addition, pharmacists on the hospital wards who prescribers can consult easily may assist in preventing errors at the ordering stage. A large observational study by Bond et al[2] identified that clinical pharmacy services in hospitals are associated with improvement in mortality, drug costs, cost of care, and length of stay. Bond et al[3] also reported lower medication error rates as the number of clinical pharmacists increased per occupied bed.

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Kaboli et al[4] recently reviewed the literature from the last 20 years and concluded that the addition of clinical pharmacist services in the care of inpatients generally resulted in improved care, with no evidence of harm.

Most 10-fold errors seem to occur due to misplaced decimal points, for example, adding an extra zero.[5] Our case involving a 10-fold error should alert doctors for the need to be vigilant when converting oral administration to alternative routes. In addition, it is prudent for prescribers to have their prescriptions checked, preferably by a pharmacist. Fortunately, in our case any likely harm was averted.

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